

CLAIMS

What is claimed is:

1. A method to determine a magnetic write width of a magnetic head using burst patterns, comprising:
 seeking a target track on a magnetic disc to write a burst pattern on the target track;
 seeking tracks adjacent to the target track to write burst patterns on the adjacent tracks, the adjacent tracks being offtracked by a predetermined percentage toward the target track;
 moving the magnetic head along a radial direction of the magnetic disc and measuring an output signal of the magnetic head, to create an offtrack profile; and
 determining an amplitude reduction ratio of the target track from the offtrack profile to determine the magnetic write width corresponding to the determined amplitude reduction ratio.

2. The method of claim 1, wherein the determining the amplitude reduction ratio of the target track from the offtrack profile to determine the magnetic write width corresponding to the determined amplitude reduction ratio comprises:

obtaining maximum amplitudes of the output signals of each of the target track and the adjacent tracks from the offtrack profile;
 determining the amplitude reduction ratio of the target track; and
 determining the magnetic write width corresponding to the determined amplitude reduction ratio.

3. The method of claim 2, wherein, the amplitude reduction ratio is determined using the equation:

$$\text{Amplitude Reduction Ratio} = \frac{(Amp_{N-1} + Amp_{N+1})/2 - Amp_N}{(Amp_{N-1} + Amp_{N+1})/2}$$

where, AmpN indicates the maximum amplitude value for the target track, and AmpN-1 and AmpN+1 indicate the maximum amplitude values for the adjacent tracks, respectively.

4. The method of claim 1, further comprising:
 setting a write current and a maximum overshoot value of the write current.

5. An apparatus to determine a magnetic write width of a magnetic head using burst patterns, comprising:

- a burst pattern write unit that writes burst patterns on tracks on a magnetic disc;
- a profile creating unit that measures an output signal of the magnetic head along a radial direction of the magnetic disc, to create an offtrack profile; and
- a magnetic write width measuring unit that determines an amplitude reduction ratio of a target track from the offtrack profile to determine the magnetic write width corresponding to the determined amplitude reduction ratio.

6. The apparatus of claim 5, further comprising:

- a database in which data to determine the magnetic write width based on the amplitude reduction ratio is stored.

7. A computer readable medium to determine a magnetic write width of a magnetic head using burst patterns, comprising:

- a first set of instructions seeking a target track on a magnetic disc and writing a burst pattern on the target track;
- a second set of instructions seeking tracks adjacent to the target track and writing burst patterns on the adjacent tracks, respectively, which are offtracked by a predetermined percentage toward the target track;
- a third set of instructions moving the magnetic head along a radial direction of the magnetic disc and measuring an output signal of the magnetic head, to create an offtrack profile; and
- a fourth set of instructions determining an amplitude reduction ratio of the target track from the offtrack profile and determining the magnetic write width corresponding to the determined amplitude reduction ratio.

8. The computer readable medium of claim 7, wherein the fourth set of instructions comprises:

- a fifth set of instructions obtaining maximum amplitudes of the output signals of each of the target track and the adjacent tracks from the offtrack profile;
- a sixth set of instructions determining the amplitude ratio of the target track; and
- a seventh set of instructions determining the magnetic write width corresponding to the determined amplitude reduction ratio.

9. The computer readable medium of claim 8, wherein:
the sixth set of instructions employs the formula

$$\text{Amplitude Reduction Ratio} = \frac{(Amp_{N-1} + Amp_{N+1})/2 - Amp_N}{(Amp_{N-1} + Amp_{N+1})/2}$$

where, AmpN indicates the maximum amplitude value for the target track, and AmpN-1 and AmpN+1 indicate the maximum amplitude values for the adjacent tracks.

10. The computer readable medium of claim 7, further comprising:
a fifth set of instructions setting a write current and a maximum overshoot value of the write current.

11. An apparatus to determine a magnetic write width of a magnetic head of an assembled hard disc drive, comprising:

a profile creating unit to measure an output signal of the magnetic head along a radial direction of the magnetic disc to create an offtrack profile; and

a magnetic write width measuring unit to determine an amplitude reduction ratio of a target track from the offtrack profile to determine the magnetic write width corresponding to the determined amplitude reduction ratio.

12. An apparatus to determine a magnetic write width of a magnetic head of a hard disc drive, comprising:

a burst pattern write unit to write burst patterns on tracks on a magnetic disc;

a profile creating unit to measure an output signal of the magnetic head along a radial direction of the magnetic disc to create an offtrack profile; and

a magnetic write width measuring unit to determine an amplitude reduction ratio of a target track from the offtrack profile to determine the magnetic write width corresponding to the determined amplitude reduction ratio,

wherein the hard disc drive is assembled prior to determination of the magnetic write width.

13. The apparatus of claim 12, wherein:
the burst pattern write unit writes burst patterns to the target track and to tracks adjacent to the target track.

14. The apparatus of claim 13, wherein:
the tracks adjacent to the target track are positioned at 20% offtrack positions toward the target track.

15. The apparatus of claim 12, further comprising:
a database in which data to determine the magnetic write width based on the amplitude reduction ratio is stored.

16. A method to determine a magnetic write width of a magnetic head of an assembled hard disc drive, comprising:
moving the magnetic head along a radial direction of the magnetic disc and measuring an output signal of the magnetic head, to create an offtrack profile; and
determining an amplitude reduction ratio of the target track from the offtrack profile and determining the magnetic write width corresponding to the determined amplitude reduction ratio.

17. An apparatus to reduce a cost of manufacturing a hard disk drive, comprising:
a magnetic write width determining unit that determines a magnetic write width of a magnetic head of the hard disc drive after the hard disc drive is assembled.